What is claimed is:

1. A magnetic recording medium comprising: a soft magnetic layer, a seed layer, an under layer and a magnetic recording layer stacked successively on a non-magnetic substrate, wherein

said seed layer is made of a material containing Ni; and

said under layer has a grain isolation type structure where grains made of a non-magnetic material are isolated in a non-magnetic matrix and the non-magnetic matrix is made of a material containing Y_2O_3.

2. The magnetic recording medium according to claim 1, wherein said grains are made of a non-magnetic material containing at least one element selected from among Pt, Pd, Ru and Rh.

3. A magnetic recording medium comprising: a soft magnetic layer, a seed layer, an under layer and a magnetic recording layer stacked successively on a non-magnetic substrate, wherein

said seed layer is made of a material containing Ni; and

said under layer has a grain isolation type structure

where grains made of a non-magnetic material are isolated in a non-magnetic matrix and the non-magnetic matrix is made of a material containing at least one kind selected from among metal oxide, metal nitride, metal carbide, oxide of semiconductor, nitride of semiconductor and carbide of semiconductor, and said grains are made of a non-magnetic material containing at least one element selected from among Au, Ag and Cu.

4. The magnetic recording medium according to claim 3, wherein said non-magnetic matrix is a material containing at least one kind selected from among SiO_2, Y_2O_3, Cr_2O_3, Al_2O_3, and Ta_2O_5.

5. The magnetic recording medium according to claim 1, wherein a second under layer made of a material containing Ru is provided between said under layer and said magnetic recording layer.

6. The magnetic recording medium according to claim 3, wherein a second under layer made of a material containing Ru is provided between said under layer and said magnetic recording layer.

7. The magnetic recording medium according to claim 1,

wherein said seed layer contains at least one element selected from among Fe, Co, Cr, V, Mo, Nb, Zr, W, Ta, B and C.

8. The magnetic recording medium according to claim 3, wherein said seed layer contains at least one element selected from among Fe, Co, Cr, V, Mo, Nb, Zr, W, Ta, B and C.

9. The magnetic recording medium according to claim 1, wherein said seed layer has magnetic flux density for saturation Bs of 0.2 T or higher and coercive force Hc of 100 (Oe) or less.

10. The magnetic recording medium according to claim 3, wherein said seed layer has magnetic flux density for saturation Bs of 0.2 T or higher and coercive force Hc of 100 (Oe) or less.

11. The magnetic recording medium according to claim 1, wherein said magnetic recording layer is made of a Co alloy containing a metal oxide or an oxide of a semiconductor.

12. The magnetic recording medium according to claim 3, wherein said magnetic recording layer is made of a Co alloy containing a metal oxide or an oxide of a semiconductor.

13. A method of manufacturing a magnetic recording medium comprising a soft magnetic layer, a seed layer, an under layer and a magnetic recording layer stacked successively on a non-magnetic substrate, wherein

said seed layer is made of a material containing Ni; and

said under layer has a grain isolation type structure where grains made of a non-magnetic material are isolated in a non-magnetic matrix and the non-magnetic matrix is made of a material containing Y_2O_3.

14. A method of manufacturing a magnetic recording medium, which comprises forming a soft magnetic layer, a seed layer, an under layer and a magnetic recording layer stacked successively on a non-magnetic substrate, wherein

said seed layer is made of a material containing Ni; and

said under layer has a grain isolation type structure where grains made of a non-magnetic material are isolated in a non-magnetic matrix and said non-magnetic matrix is made of a material containing at least one kind selected from among metal oxide, metal nitride, metal carbide, oxide of semiconductor, nitride of semiconductor and carbide of semiconductor, and said grains are made of a material containing at least one element selected from among Au, Ag

and Cu.

15. A magnetic recording/reproducing apparatus comprising the magnetic recording medium of claim 1, and a magnetic head.

16. A magnetic recording/reproducing apparatus comprising the magnetic recording medium of claim 3, and a magnetic head.